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CONTRIBUTIONS TOWARD A FLORA OF NEVADA

NO. 44

UMBELLIFERAE OF NEVADA

by

MILDRED E. MATHIAS AND LINCOLN CONSTANCE

September 15, 1957

A series prepared through the cooperation of
the National Arboretum and the New Crops Research Branch
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Plant Industry Station
Beltsville, Md.

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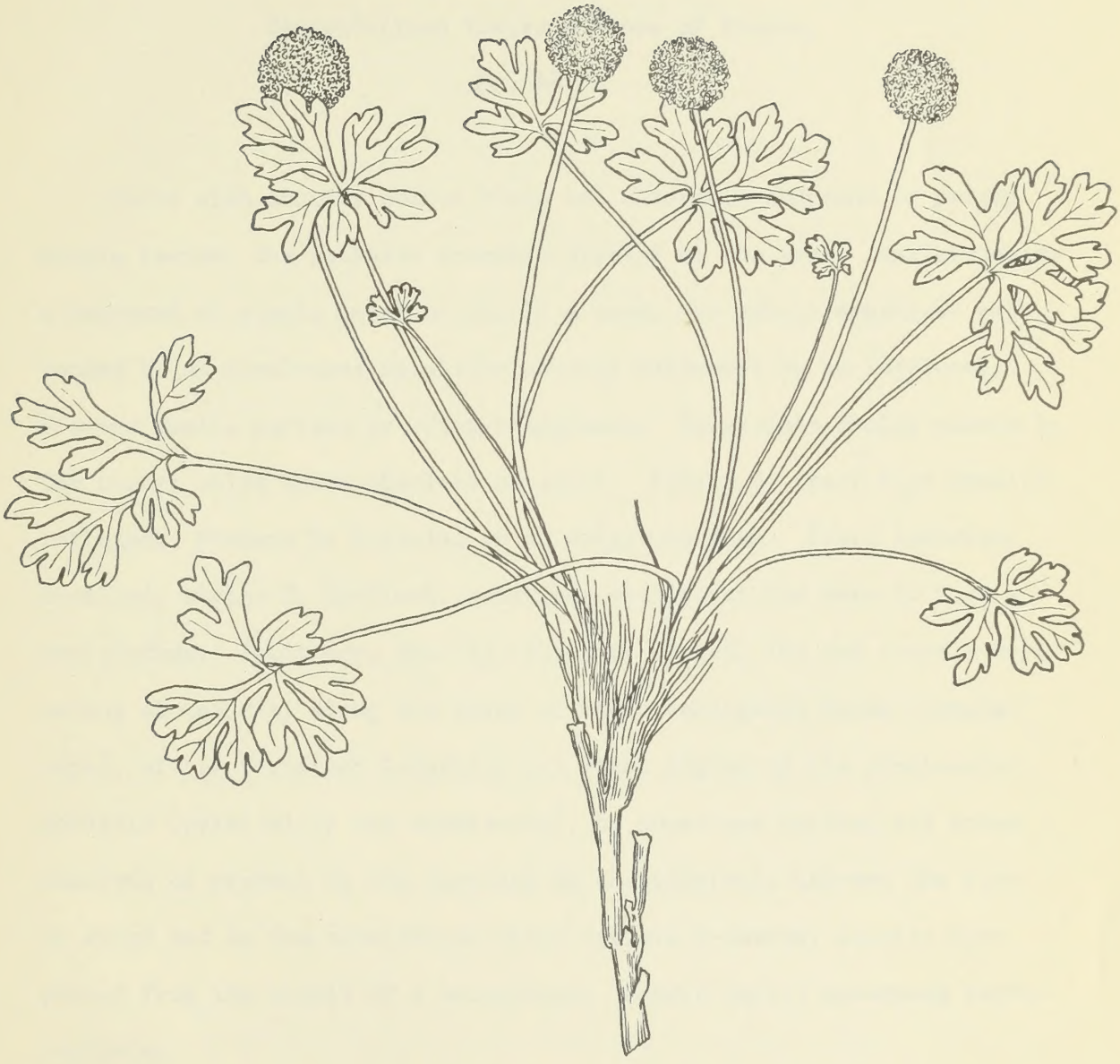

Cymopterus Ripleyi Barneby

Alexander & Kellogg 5636, UC No. 933496

Drawn by Lincoln Constance

UMBELLIFERAE OF NEVADA

By Mildred E. Mathias and Lincoln Constance *

Contributions Toward A Flora of Nevada,

No. 44

Herbs with usually hollow stems and alternate compound or rarely simple leaves, the petioles commonly dilated at the base. Inflorescence a compound or simple umbel or rarely a head, the umbels sometimes subtended by an involucre; umbellets usually subtended by an involucel. Flowers small, perfect or often polygamous. Calyx-tube wholly adnate to the ovary; calyx teeth obsolete or small. Petals 5, their tips usually inflexed. Stamens 5, inserted on an epigynous disk. Ovary inferior, 2-celled; styles 2, distinct, sometimes swollen at the base to form a stylopodium. Fruit dry, usually ribbed or winged, the two carpels separating at maturity along the plane of their contiguous faces (commissure), either flattened laterally (at right angles to the commissure), dorsally (parallel to the commissure), or sometimes terete; oil tubes obsolete or present in the pericarp in the intervals between the ribs or wings and on the commissural side; carpels 1-seeded, usually suspended from the summit of a carpophore. Embryo small; endosperm cartilaginous.

A family of about 300 genera and 3000 species, widely distributed throughout the world, primarily in temperate areas. Several species are

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of economic importance as vegetables or condiments, such as anise, caraway, carrot, celery, coriander, cumin, dill, fennel, parsley and parsnip. A few species are cultivated as ornamentals.

KEY TO GENERA

A. Inflorescence a distinct umbel with evident rays and usually evident pedicels, more or less spreading, never capitate.

B. Leaves all simple; umbels simple or proliferous.

C. Ovary and fruit glabrous; foliage glabrous; inflorescence a spike with few verticils of flowers . . . . . 1. HYDROCOTYLE

C. Ovary and fruit covered with stellate hairs; foliage stellate-pubescent; inflorescence a 2-3-flowered simple umbel 2. BOWLESIA

B. Leaves variously compound, or rarely the basal simple; umbels regularly or perfectly compound, rarely simple.

D. Ovary and fruit armed with bristles, spines or tubercles.

E. Fruit subglobose to oblong, not more than three times as long as broad; ovary and fruit armed with uncinate or barbed bristles or prickles.

F. Plants annual; petals cuneate to obovate; fruit flattened laterally, armed with uncinate bristles; seed face deeply sulcate . . . . . 6. CAUCALIS

F. Plants biennial; petals obcordate, unequally cleft; fruit flattened dorsally, with some or all of the bristles barbed; seed face shallowly concave to nearly plane 7. DAUCUS

E. Fruit linear or linear-oblong, several times longer than broad; ovary and fruit bristly-hispid, the bristles never uncinate nor barbed . . . . . 5. OSMORHIZA

D. Ovary and fruit not armed, sometimes pubescent.

G. Fruit terete in trans-section or compressed laterally; ribs of the fruit not prominently winged.

H. Plants scaberulous to densely scabrous; fruit scaberulous to densely scabrous . . . . . 9. MUSINEON

H. Plants glabrous or the foliage rarely scaberulous; ovary and fruit glabrous.

I. Annual; the outer flowers of the umbel radiant, the petals conspicuously unequal; fruit globose with a hard pericarp, not constricted at the commissure
14. CORIANDRUM

I. Biennial or perennial; outer flowers usually not radiant, the petals subequal; fruit not globose.

J. Ovary and fruit elongate, several times longer than broad . . . . . 5. OSMORHIZA

J. Ovary and fruit ovoid to oblong, not more than three times as long as broad.

K. Stems and leaf sheaths purple-spotted; oil tubes absent or obscure; leaves decompound into small segments . . . . . .11. CONIUM

K. Stems and leaf sheaths not purple-spotted; oil tubes present; leaves pinnately or ternate-pinnately divided, the segments mostly larger.

L. Basal and lower leaves mostly simple, ovate to orbicular, deeply cordate, crenate; stem leaves ternate or quinate; flowers yellow
8. ZIZIA

L. Basal and lower leaves compound; stem leaves pinnate to ternate-pinnately decompound.

M. Leaves all once-pinnate.

N. Ribs inconspicuous, the pericarp forming a continuous corky covering; stylopodium conical . . . . . 15. BERULA

N. Ribs conspicuous; stylopodium depressed.

O. Leaflets linear to linear-lanceolate, sharply serrate; involucre and involucel present . . . . . 16. SIUM

O. Leaflets broadly ovate to oval or cuneate, coarsely toothed and incised; involucre and involucel absent
10. APIUM

M. Leaves pinnately or ternate-pinnately divided or the uppermost once-pinnate.

P. Ribs not corky; stylopodium prominent; plants of dry ground or moist meadows.

Q. Leaf divisions few, mostly entire; ribs filiform; plants from tuberous or fusiform fascicled roots 12. PERIDERIDIA

Q. Leaf divisions many, incised or serrate; ribs prominent or somewhat winged; plants from fibrous root crowns surmounting taproots 13. LIGUSTICUM

P. Ribs corky; stylopodium depressed or low-conical; plants of marshes or stream banks . . . . . 17. CICUTA

G. Fruit compressed dorsally; some or all of the ribs winged.

R. Lateral ribs winged, dorsal ribs filiform.

S. Marginal flowers of the umbel with subequal petals; plants lower, mostly slender.

T. Plants biennial; leaves once-pinnate, the leaf divisions mostly ovate; stylopodium depressed-conical . . . . . 23. PASTINACA

T. Plants perennial; leaves pinnately or ternate-pinnately divided; the leaf divisions mostly linear to filiform; stylopodium absent . . 22. LOMATIUM

S. Marginal flowers of the umbel with radiately enlarged petals; tall stout plants . . . . . 24. HERACLEUM

R. Lateral, dorsal and intermediate ribs winged or prominent.

U. Plants tall; stems leafy.

V. Umbellets capitate . . . . . 21. SPHENOSCIADIUM

V. Umbellets not capitate . . . . . 20. ANGELICA

U. Plants lower; leaves basal or subbasal.

W. Plants mostly caulescent; bractlets usually inconspicuous; sepals prominent . . . . 19. PTERYXIA

W. Plants acaulescent; bractlets usually conspicuous; sepals not prominent . . . . . .18. CYMOPTERUS

A. Inflorescence capitate or of heads arranged in cymes, not umbellate.

X. Fruit winged, not squamose; leaves with well-developed blades, not spinose . . . . . 18. CYMOPTERUS

X. Fruit not winged, ribless, variously squamose, tuberculate or prickly.

Y. Young leaves bladeless, of terete, septate petioles, the latter sometimes with a spinose or spinulose blade; fruits squamose 4. ERYNGIUM

Y. Young leaves with well-developed blades; fruits prickly or tuberculate . . . . . .3. SANICULA

1. HYDROCOTYLE L.

Low perennials growing in or near water, with slender creeping stems. Leaves orbicular, peltate or reniform. Umbels simple or proliferous (in ours). Sepals minute or obsolete. Petals small, white. Fruit orbicular to ellipsoid, strongly compressed laterally; carpel with 5 primary ribs; oil tubes wanting or obscure.

Name derived form the Greek, meaning water-cup.

About 75 species, world-wide, one in Nevada.

1. HYDROCOTYLE VERTICILLATA var. TRIRADIATA (A. Rich.) Fernald, Rhodora 41: 437, 1939.

Hydrocotyle profilera Kellogg, Proc. Calif. Acad. 1: 15. 1854.

Plants glabrous; stems filiform, creeping in mud, from tuberiferous rootstocks; leaves orbicular-peltate, shallowly lobed, the lobes crenate; peduncles slender, usually equaling or exceeding the petioles; inflorescence an interrupted simple, rarely branched, spike with few 4-15-flowered verticils; pedicels 1-10 mm. long.

Along streams, Massachusetts to Florida, W to California; also Mexico, Central America, West Indies and South America. Nevada: Clark Co. Flowers April to September.

2. BOWLESIA R. & P.

Slender branching annuals, with stellate pubescence. Stipules scarious, lacerate. Leaves opposite, simple, lobed. Umbels on axillary peduncles, simple, few-flowered. Sepals rather prominent. Petals white. Fruit stellate-pubescent, broadly ovoid, with a narrow commissure, and without ribs or oil tubes, the dorsal portion of each carpel inflated; seed compressed dorsally, the face and back plane or convex.

Named for William Bowles, 1705-1780, Irish naturalist and traveler.

About 20 species, chiefly South America, one in Nevada.

1. BOWLESIA INCANA R. & P., Fl. Per. 3: 28, 1802.

Bowlesia septentrionalis Coult. & Rose, Contr. U. S. Nat. Herb. 7: 31, 1900.

Stems slender, weak, prostrate to suberect, dichotomously branching; leaves petiolate, cordate to reniform, palmately 5-7-lobed, the lobes entire to dentate; peduncles shorter than the leaves; umbels 2-6-flowered; fruit sessile or subsessile.

Partially shaded slopes, Texas to California; also South America. Nevada: Clark Co. Flowers in April.

3. SANICULA L.

Glabrous biennial or perennial herbs, with few-leaved or nearly naked stems. Leaves palmately, pinnately, or ternately divided or rarely entire, the divisions pinnatifid or incised. Umbels simple, cymosely arranged. Involucre present. Sepals evident, persistent. Petals white, greenish-yellow, red or purple. Fruit subglobose, densely covered with hooked bristles or tubercles; carpels not ribbed; oil tubes usually sev-

eral to numerous.

Name derived from the Latin, meaning to heal.

Forty species, nearly world-wide except for Australia and New Zealand, one in Nevada.

1. SANICULA GRAVEOLENS Poepp. ex DC., Prodr. 4: 85, 1830.

Sanicula nevadensis Wats., Proc. Amer. Acad. 11: 139, 1876; S. septentrionalis Greene, Erythea 1: 6, 1893.

Plants erect or low and spreading; stems solitary, elongate to obsolete, many-branched from near the base, or simple below and branching above; leaves ternate, biternate or ternately bipinnate, the divisions oblong-ovate, petiolulate, 3-5-lobed or 1-2-pinnatisect, the segments orbicular-ovate to oblong-ovate, cuneate, incised or lobed, or pinnatisect into remote, ovate or lanceolate divisions, the margins irregularly incised, lobed or crenate-serrate; upper cauline bracts 2, pinnatifid; involucral bracts conspicuously connate at the base, often scarious-margined; flowers yellow, the fertile flowers subsessile; fruit covered with stout, uncinate, strongly inflated prickles, these bulbous at the base, or some of the lower prickles rudimentary.

Open coniferous forests, W Montana to British Columbia, to S California; Argentina and Chile. Nevada: material from Ormsby and Washoe Cos. Flowers in June.

4. ERYNGIUM L.

Creeping to erect, herbaceous, usually glabrous biennials or perennials from taproots or clusters of fibrous roots. Leaves entire, or pinnately or palmately lobed to divided, blades sometimes obsolete;

petioles sheathing, sometimes septate. Inflorescence capitate, the heads solitary, cymose or racemose. Involucre of entire or lobed bracts subtending the head. Bractlets entire or lobed, subtending the white, blue or purple flowers. Sepals conspicuous, entire to spinescent. Rays and pedicels none. Stylopodium none, the styles shorter or longer than the persistent sepals. Fruit globose to ovoid, slightly compressed laterally if at all, variously covered with scales or tubercles; ribs obsolete; oil tubes inconspicuous.

Old Greek name.

About 200 species, widely distributed, one in Nevada.

1. ERYNGIUM ALISMAEFOLIUM Greene, Erythea 3: 64, 1895.

Eryngium articulatum var. microcephalum Coult. & Rose, Rev. N. Am. Umbel. 99, 1888.

Low glabrous perennials from a fascicle of fibrous roots, the stems numerous, diffuse, branching above; basal leaves lanceolate to obovate, often exceeding the stems, the earlier leaves consisting of terete, septate, bladeless petioles, the later flat, spinose and developing a lanceolate to ovate, spinose-serrate, incised or pinnatifid blade; cauline leaves much reduced; inflorescence cymose, the heads rather small, numerous, short-pedunculate, globose; bracts few, linear-lanceolate to subulate, often spinose-ciliate, exceeding the heads; bractlets spinose to entire, with broad scarious margins, exceeding the fruit; sepals ovate-lanceolate, scarious-margined; styles equaling or slightly longer than the sepals; fruit ovoid, densely covered with short, appressed, white or tawny, subequal scales.

Mountain meadows, south-central Oregon to NE California. Nevada:

Elko Co. Flowers May to June.

5. OSMORHIZA Raf.

Slender to rather stout, caulescent, pubescent to glabrate perennials. Leaves ternate or ternate-pinnate, the leaflets lanceolate to orbicular, serrate to pinnatifid, with mucronate teeth or lobes. Inflorescence of loose compound umbels. Involucre wanting or of several foliaceous bracts. Involucel of several reflexed bractlets or wanting. Rays few, slender, ascending to divaricate and reflexed, unequal. Flowers white, purple, or greenish-yellow. Calyx teeth obsolete. Stylopodium conical. Fruit linear to oblong, cylindric to clavate, obtuse, tapering, beaked or constricted at the apex, rounded or caudate at the base, a little compressed laterally, bristly-hispid to glabrous; ribs filiform, acute, often bristly; oil tubes obscure or wanting; seed face concave or sulcate.

Name from two Greek words meaning smell and root.

Eleven species of North and South America and eastern Asia, three in Nevada.

KEY TO SPECIES

A. Fruit base obtuse and without appendages, the fruit glabrous; petals yellow . . . . . 1. O. OCCIDENTALIS

A. Fruit base attenuate into prominent appendages, the fruit conspicuously bristly at least at the base; petals greenish-white or pinkish.

B. Rays and pedicels spreading-ascending; fruit cylindric, beaked 2. O. CHILENSIS

B. Rays and pedicels divaricate; fruit clavate, obtuse 3. O. DEPAUPERATA

1. OSMORHIZA OCCIDENTALIS (Nutt.) Torr., Bot. Mex. Bound. Surv, 71, 1859.

Glycosma occidentalis Nutt. ex T. & G., Fl. N. Am. 1: 639, 1840; Osmorhiza ambigua Coult. & Rose, Rev. N. Am. Umbell. 119, 1888; Washingtonia bolanderi Coult. & Rose, Contr. U. S. Nat. Herb. 7: 68, 1900.

Plants rather stout, villous at the nodes and hirtellous to glabrate; leaf blades oblong or ovate, 1-3-ternate or ternate-pinnate, the leaflets oblong-lanceolate to ovate, acute or acutish, serrate and usually incised or lobed; involucre usually wanting; involucel usually wanting; rays 5-12, stiffly ascending to spreading-ascending; flowers yellow; fruit linear-fusiform, constricted below the apex, obtuse at the base, glabrous.

Moist, shady woods, Alberta to Colorado, W to British Columbia and central California. Nevada: Elko, Humboldt, Lander, Nye, Ormsby, Washoe and White Pine Cos. Flowers May to August. An anise-like odor in roots.

2. OSMORHIZA CHILENSIS Hook. & Arn., Bot. Beechey Voy. 26, 1830; Hook., Bot. Miscel. 3: 355, 1833.

Osmorhiza divaricata Nutt. ex T. & G., Fl. N. Am. 1: 639, 1840; O. nuda Torr., Pacif. R. R. Rep. 4 (1): 93, 1857; Washingtonia divaricata Britton, in Britt. & Brown, Ill. Fl. 2: 531, 1897; W. nuda A. Heller, Cat. N. Am. Pl. 5. 1898, W. intermedia Rydb., Mem. N. Y. Bot. Gard. 1: 289, 1900; W. brevipes Coult. & Rose, Contr. U. S. Nat. Herb. 7: 66, 1900; Osmorhiza brevipes Suksd., Allg. Bot. Zeits. 12: 5, 1906.

Plants slender, hirtellous to hirsutulous or villous; leaf blades orbicular, biternate, the leaflets ovate-lanceolate to orbicular, obtuse or acute, coarsely serrate, incised or lobed; involucre usually

wanting; involucel wanting, rarely vestigial; rays 3-8, spreading-ascending; flowers greenish-white, rarely pinkish; fruit linear-oblong, tapering toward the apex into a slender beak, caudate at the base, the appendages 2-7 mm. long, densely hispid at the base.

Moist, shady woods, Newfoundland and Quebec to New Hampshire; Ontario to N Michigan and Wisconsin; Alberta to Arizona, W to Alaska and California; S Argentina and Chile. Nevada: Elko and Washoe Cos. Flowers June to July.

3. OSMORHIZA DEPAUPERATA Phil., Anal. Univ. Chile 85: 726. 1894. Washingtonia obtusa Coult. & Rose, Contr. U. S. Nat. Herb. 7: 64, 1900; Osmorhiza obtusa Fernald, Rhodora 4: 154, 1902.

Plants slender, sparsely, or rarely densely, hirsutulous to glabrate; leaf blades orbicular, biternate or ternate-pinnate, the leaflets broadly lanceolate to ovate, obtuse or acute, coarsely serrate, incised or lobed; involucre wanting, or often of a foliaceous bract; involucel wanting, or often of a foliaceous bract; rays 2-5, widely divergent or some reflexed, flowers greenish white; fruit clavate, obtuse or abruptly actue at the apex, caudate at the base, the appendages 3-5 mm. long, densely hispid at the base.

Moist, shady woods, Labrador and Newfoundland to Vermont; Ontario and N Michigan; Saskatchewan and Alberta to New Mexico, W to Alaska, S to NE California; S Argentina and Chile. Nevada: Clark, Elko and Eureka Cos. Flowers June to July.

(Examination of Philippi's type at Santiago, Chile, has verified the necessity of substituting this name for the heretofore accepted O. obtusa (C. & R.) Fernald.)

6. CAUCALIS L.

Mostly hispid caulescent annuals. Leaves pinnate or pinnately decompound with linear to filiform ultimate divisions. Umbels few-rayed. Involucre of a few entire or dissected bracts or wanting. Involucel of a few entire or dissected, somewhat scarious bractlets. Flowers white. Sepals evident. Stylopodium conical. Fruit ovoid or oblong, compressed laterally; carpel with 5 filiform bristly ribs and 4 prominent winged secondary ones, with barbed or hooked bristles; oil tubes solitary under the secondary ribs, 2 on the commissural side; seed face deeply sulcate.

The ancient classical name.

Five species, natives of Asia, southern Europe, northern Africa and North and Central America, one in Nevada.

1. CAUCALIS MICROCARPA H. & A., Bot. Beech. Voy. 348, 1838.

Slender erect annual; leaves pinnately decompound into small segments; umbels unequally 1-9-rayed; bracts foliaceous, pinnately decompound; pedicels very unequal; fruit oblong, armed with rows of hooked prickles.

Sandy or rocky soils, British Columbia to Baja California, E to Idaho, Utah, Arizona and Sonora. Nevada: Clark Co. Flowers March to April.

7. DAUCUS L.

Pubescent biennial herbs with pinnately decompound leaves. Umbels compound. Involucre of foliaceous, pinnately divided bracts. Involucel of linear bractlets. Sepals obsolete to evident. Flowers white,

or the central flower of each umbellet purple, or rarely all reddish or yellow. Stylopodium conical. Fruit ovoid to oblong, compressed dorsally; primary ribs slender, bristly, the secondary ribs winged and bearing a single row of barbed or glochidiate prickles; oil tubes solitary in the intervals, 2 on the commissure.

The ancient Greek name.

A genus of about 25 species widely distributed throughout the world, one, the wild carrot, has been introduced from Europe and is sporadic in Nevada.

1. DAUCUS CAROTA L., Sp. Pl. 242. 1753.

Plants from slender fusiform taproots to 12 dm. high; leaf segments linear or lanceolate, to 12 mm. long; rays numerous, unequal, to 7.5 cm. long, compact in fruit; fruit 3-4 mm. long.

Native of Europe, widely adventive. Nevada: Elko and Washoe Cos. Flowers May to September.

8. ZIZIA Koch

Usually glabrous perennial herbs. Leaves 1-2-ternate or the basal sometimes entire. Umbels compound. Involucre none. Involucel of several small bractlets. Flowers yellow. Sepals prominent. Fruit oval or oblong, compressed laterally; ribs filiform; oil tubes solitary with a small accessory tube under each rib.

Names in honor of I. B. Ziz, a Rhenish botanist.

A North American genus of four species, one in Nevada.

1. ZIZIA APTERA (Gray) Fernald, Rhodora 41: 411. 1939.

Zizia cordata Koch ex DC., Prod. 4: 100, 1830, not Smynium cordatum

Walt. 1788; Thaspium trifoliatum var. apterum Gray, Man. ed. 2. 156, 1856.

Plants branched, to 6 dm. high; basal and lower leaves simple, or occasionally ternate, long-petiolate, ovate or orbicular, deeply cordate, finely crenate, to 7 cm. long; stem leaves short-petiolate, ternate or quinate, the leaf divisions toothed or incised; rays 12-16, to 3 cm. long; fruit oblong to oval, 2-4 mm. long.

Woods, E Washington and Oregon, E to the Atlantic states. Nevada material seen from Elko Co. Flowers May to June.

9. MUSINEON Raf.

Low, short-caulescent or acaulescent, glabrous to scabrous perennial herbs. Leaves 1-3-pinnate, or ternate with linear divisions. Umbels compound. Involucre usually absent. Involucel dimidiate or subdimidiate, of linear bractlets. Flowers white or yellow. Sepals conspicuous. Stylopodium absent. Fruit ovoid to linear-oblong, compressed laterally and somewhat constricted at the commissure; ribs acute, prominent; oil tubes 1-4 in the intervals, 2-6 on the commissure.

Meaning of name not known.

A genus of four species, native in western North America, one in Nevada.

1. MUSINEON DIVARICATUM var. HOOKERI T. & G., Fl. N. Am. 1: 642, 1840.

Plants caulescent, the stems scaberulous at the base of the umbel to densely scabrous throughout; leaves usually scabrous along the veins and margins; rays 10-20, subequal, to 45 mm. long, scabrous; fruit 3-6 mm. long, minutely scaberulous to densely scabrous; oil tubes rarely

solitary in the intervals.

Dry ground, central Saskatchewan to central Colorado, E to W North Dakota and W to E Idaho and Nevada, (White Pine Co.). Flowers June to July.

10. APIUM L.

Glabrous annual, biennial or perennial herbs. Leaves pinnate to ternate-pinnately decompound. Umbels compound. Involucre and involucel absent or conspicuous. Flowers white or greenish yellow. Sepals obsolete. Stylopodium depressed or low-conical. Fruit ovoid to ellipsoid, compressed laterally, smooth or tuberculate, somewhat five-angled; ribs prominent; oil tubes usually solitary in the intervals, 2 on the commissural side.

The ancient Latin name for the genus.

A cosmopolitan genus of 25-30 species, one, the cultivated celery, adventive in Nevada.

1. APIUM GRAVEOLENS L., Sp. Pl. 264, 1753.

Stems erect, branching, to 15 dm. high; leaves pinnate, the basal petiolate, the upper much reduced, nearly sessile; the leaf divisions broadly ovate to oval or cuneate, coarsely toothed and incised; umbels opposite the leaves or terminal, 7-16-rayed; involucre and involucel wanting; fruit about 1.5 mm. long; ribs slightly winged.

Native of Europe, escaped from cultivation in moist places. Nevada: Clark and Lincoln Cos. Flowers May to July.

11. CONIUM L.

Tall biennial glabrous poisonous herbs with spotted stems and pin-

nately decompound leaves. Umbels compound. Involucre and involucel of ovate, acuminate bracts and bractlets. Flowers white. Sepals obsolete. Sytlopodium depressed-conic. Fruit broadly ovoid, compressed laterally; ribs prominent, undulate; oil tubes obscure.

From the Greek name of the poison hemlock.

A genus of 2 species in Eurasia and South Africa, one, the poison hemlock, adventive in Nevada.

1. CONIUM MACULATUM L., Sp. Pl. 243, 1753.

Stems much-branched, to 30 dm. high; lower and basal leaves long petiolate, the upper sessile or nearly so, the leaflets dentate or incised; rays slender, 2.5-4 cm. long; fruit 2-2.5 mm. long.

Native of Eurasia, widely naturalized in waste places, especially in damp ground. Nevada: Elko, Eureka, Lander, Ormsby, Storey, Washoe and White Pine Cos. Flowers May to August.

12. PERIDERIDIA Reichb.

Slender or stout, caulescent, branching glabrous perennial herbs from tuberous or fusiform fascicled roots. Leaves ternately, pinnately or ternate-pinnately compound, with linear divisions. Umbels compound. Involucre absent or of few to numerous, entire bracts. Involucel of usually scarious or colored bractlets. Flowers white to pinkish. Sepals evident. Stylopodium conical or low-conical. Fruit compressed laterally; ribs filiform; oil tubes 1-5 in the intervals, 2-8 on the commissure.

Meaning of name unknown.

An American genus of nine species, three in Nevada.

KEY TO SPECIES

A. Basal leaves 1-2-pinnate or 1-2-ternate, the petioles and rachis not dilated, the ultimate divisions not dimorphic.

B. Fruit orbicular to suborbicular, 2-3 mm. long, 1.5-2.5 mm. broad; bractlets usually setaceous . . . . . 1. P. GAIRDNERI

B. Fruit oblong to ovoid, 2.5-3.5 mm. long, 1.5-2.5 mm. broad; bractlets scarious or scarious-margined, often conspicuous 2. P. PARISHII

A. Basal leaves ternate-pinnately or pinnately decompound, the petioles and rachis dilated, the ultimate divisions usually dimorphic 3. P. BOLANDERI

1. PERIDERIDIA GAIRDNERI (Hook. & Arn.) Mathias, Brittonia 2:244, 1936.

Ataenia gairdneri Hook. & Arn., Bot. Beech. Voy. 249, 1838; Carum gairdneri Gray, Proc. Am. Acad. 7: 344, 1868.

Plants slender, to 12. dm. high, from a solitary fisiform tuber or a small fascicle of tubers; leaf-divisions to 15 cm. long, entire or toothed; involucre absent or of one to several setaceous bracts; rays 8-20, to 6 cm. long; fruit 2-3 mm. long.

Wet, heavy soil, British Columbia and Washington to S California, E to Alberta and New Mexico. Nevada: Elko and Mineral Cos. Flowers June to August.

2. PERIDERIDIA PARISHII (Coult. & Rose) Nels. & Macbr., Bot. Gaz. 61: 33, 1916.

Carum gairdneri var. latifolium Gray, Proc. Amer. Acad. 7: 344, 1868; Pimpinella parishii Coult. & Rose, Bot. Gaz. 12: 157, 1887; Carum lemmonii Coult. & Rose, l.c. 14: 281, 1889; Eulophus simplex Coult. & Rose, Contr. U. S. Nat. Herb. 7: 112, 1900.

Plants slender, to 8 dm. tall, from a solitary tuber or a fascicle

of fusiform or ovoid tubers; leaves ternate, or sometimes simple or biternate, the leaflets to 10 cm. long, the terminal often elongate; involucre usually absent; rays 8-15, unequal, to 4 cm. long; bractlets conspicuous, scarious or colored; fruit 2.5-3.5 mm. long.

Usually in moist meadows, or open woods, Sierra Nevada to S California, E to Nevada and Arizona. Nevada: Elko, Douglas, Ormsby and Washoe Cos. Flowers July to September.

3. PERIDERIDIA BOLANDERI (Gray) Nels. & Macbr., Bot. Gaz. 61: 33, 1916; Podosciadium bolanderi Gray, Proc. Amer. 7: 346, 1868.

Plants slender, to 8 dm. tall, from a fascicle of fusiform tubers; leaves ternate-pinnately dissected, the leaflets to 3 cm. long, the terminal often elongate, the lateral usually lobed and toothed; involucre of 1 to several narrowly lanceolate to linear, scarious bracts; rays 10-20, to 2.5 cm. long; bractlets scarious; fruit oblong, 3-5 mm. long.

Meadow lands and slopes. E Oregon to central California, E to Wyoming and Utah. Nevada: Elko, Eureka, Humboldt, Lander, Nye, Pershing, Storey, Washoe and White Pine Cos. Flowers May to August.

13. LIGUSTICUM L.

Erect glabrous or pubescent perennial herbs from fibrous root-crowns. Leaves ternate or ternate-pinnately decompound. Umbels lateral and terminal. Involucre of one to several bracts, or deciduous, or frequently wanting. Involucels usually of linear bractlets. Flowers white, pinkish or purplish. Sepals evident or minute. Fruit slightly compressed laterally, oblong or ovoid, glabrous; ribs prominent and equal, sometimes narrowly winged; oil tubes 1-6 in the intervals, 2-10 on the commissure;

seed face plane to deeply concave.

Name from Liguria, a province of Italy, where one species is endemic.

A genus of 50 or more species, widely distributed throughout the world, particularly in the northern hemisphere, three in Nevada.

KEY TO SPECIES

A. Plants glabrous, 2-6 dm. high, scapose or with 1 or 2 much-reduced cauline leaves . . . . . 1. L. GRAYII

A. Plants glabrous or pubescent, 3-15 dm. high, with well-developed cauline leaves.

B. Leaflets ovate or oblong, to 5 cm. long; fruit 5-8 mm. long, 2-4 mm. broad, the seed face concave.

C. Leaflets 2.5-5 cm. long, glabrous . . . . . 2. L. PORTERI

C. Leaflets 0.5-0.7 cm. long, scaberulous 2a. L. PORTERI var. BREVILOBUM

B. Leaflets lanceolate; fruit 4-5 mm. long, 2-3 mm. broad, the seed face plane . . . . . 3. L. CANBYI

1. LIGUSTICUM GRAYII Coult. & Rose, Rev. N. Am. Umbell. 88, 1888.

Ligusticum apiifolium var. minor Gray ex Brew. & Wats., Bot. Calif. 1: 264, 1876; L. purpureum Coult. & Rose. Contr. U. S. Nat. Herb. 7: 137, 1900; L. pringlei Coult. & Rose, l.c.: 138, 1900; L. cusickii Coult. & Rose, l.c.; L. tenuifolium var. dissimilis A. Nels., Bot. Gaz. 53: 224, 1912.

Stems naked or with one or few much-reduced cauline leaves, slender, glabrous throughout; leaves ternate-pinnate, the leaflets ovate to oblong, pinnatifid into oblong dividions; rays 5-14; bractlets few, linear, setaceous; pedicels 3-8 mm. long; fruit 4-6 mm. long, seed face slightly concave.

Mountain meadows and open slopes, Washington to central California, E to Montana and Nevada, where seen from Elko, Humboldt, Ormsby and Washoe Cos. Flowers June to August.

2. LIGUSTICUM PORTERI Coult. & Rose, Rev. N. Am. Umbell. 86, 1888.

Stems leafy, stout, freely branched, glabrous or puberulent above; leaves 1-3-ternate-pinnate, the leaflets ovate, 2.5-5 cm. long, regularly incised; peduncles stout, often verticillate; rays 11-24, bractlets wanting or few, linear; pedicels 5-12 mm. long; fruit 5-8 mm. long; seed face concave.

Pine forests, Colorado to Nuevo Leon, W to Arizona and Nevada (White Pine Co.). Flowers July to August.

2a. LIGUSTICUM PORTERI var. BREVILOBUM (Rydb.) Math. & Const., Bull. Torrey Club 68: 123, 1941.

Ligusticum brevilobum Rydb., Fl. Rocky Mts. 613, 1917.

Leaflets ovate to oblong, 0.5-0.7 cm. long, glabrous to scaberulous.

Pine woods, Utah and Nevada (White Pine Co.). Flowers July to August.

3. LIGUSTICUM CANBYI Coult. & Rose, Rev. N. Am. Umbell. 86, 1888.

Stems leafy, stout, freely branched; leaves ternate-pinnate, scaberulous, the leaflets lanceolate, laciniately cleft into linear, acute divisions; peduncles alternate or verticillate, puberulent to glabrate; rays 15-30; bractlets 1 to several, linear; fruit 4-5 mm. long; seed face plane.

Open slopes and along creek banks, central Washington and E Oregon to W Montana. Nevada: Elko Co. Flowers July to August.

14. CORIANDRUM L.

Annual glabrous herbs with ternate-pinnately decompound leaves. Umbels compound. Involucre usually none. Involucel of a few narrow bractlets. Flowers white or roseate, the outer usually radiant. Sepals prominent, often unequal. Stylopodium conical. Fruit orbicular, terete, with a hard pericarp, the carpels not separating readily at maturity; oil tubes absent.

The ancient Latin name.

A genus of two species of the Old World, one, the commonly cultivated coriander, has escaped in Nevada.

1. CORIANDRUM SATIVUM L., Sp. Pl. 256. 1753.

Plants 2-7 dm. high; segments of the lower leaves ovate or obovate, toothed or cleft, of the upper leaves narrowly linear; pedicels 2-5 mm. long; fruit 1.5-5 mm. long.

Native of the Mediterranean Region, widely adventive. Nevada material seen from Pershing Co. Flowers May to July.

15. BERULA Hoffm.

Glabrous aquatic or semi-aquatic perennial herbs. Leaves pinnate, the leaflets variously cut. Umbels compound. Involucre of conspicuous narrow, entire or toothed bracts. Involucel of conspicuous narrow bractlets. Flowers white. Sepals minute. Stylopodium conical. Fruit oval to orbicular, compressed laterally; ribs filiform, obscure in the thick corky pericarp; oil tubes numerous.

Latin name of the water-cress.

A monotypic genus of north temperate regions.

1. BERULA ERECTA (Huds.) Coville, Contr. U. S. Nat. Herb. 4: 115, 1893.

Sium erectum Huds., Fl. Angl. 103, 1762; Berula pusilla Fernald, Rhodora 44: 189, 1942.

Stems leafy, branched; leaflets 5-9 pairs, oblong and subentire to serrate, often laciniate-lobed, sometimes crenate; rays 6-15, 1-2 cm. long; bracts usually conspicuous; bractlets narrow; pedicels 2-5 mm. long; fruit about 2 mm. long; ribs inconspicuous.

Marshes and streams, Eurasia, British Columbia to Baja California, E to Ontario, Illinois, Florida and Oaxaca. Nevada: Churchill, Clark, Elko, Eureka, Humboldt, Lincoln, Nye, Washoe and White Pine Counties. Flowers June to September.

16. SIUM L.

Glabrous aquatic or semi-aquatic perennial herbs. Leaves pinnate to pinnately decompound. Umbels compound. Involucre and involucels of numerous narrow bracts and bractlets. Flowers white. Sepals minute. Stylopodium depressed. Fruit oval to orbicular, compressed laterally; ribs prominent, corky, subequal; oil tubes 1-3 in the intervals; seed face plane.

Greek name of a marsh plant.

A genus of about 8 species, natives of the north temperate regions and South Africa, one in Nevada.

1. SIUM SUAVE Walt., Fl. Car. 115. 1788.

Sium cicutaefolium Schrank, Baier. Fl. 1: 558, 1789; S. heterophyllum Greene, Pittonia 2: 102, 1890.

Stems erect, stout, branched, to 12 dm. high; lower leaves long-pet-

iolate, the uppermost subsessile; divisions of submerged leaves pectinately dissected, the others linear to lanceolate, sharply serrate to 4 cm. long; rays 10-20, to 30 mm. long; fruit oval to orbicular, 2-3 mm. long.

Marshes and along streams, British Columbia to central California, E to Newfoundland and Virginia. Nevada: Churchill, Douglas, Elko, Humboldt, Lander, Lyon, and Mineral Cos. Flowers July to August.

17. CICUTA L.

Glabrous, branching, perennial herbs with leafy stems, from a tuberous base bearing fibrous, fleshy-fibrous or tuberous roots. Leaves broad, 1-3-pinnate or ternate-pinnate, the leaf-divisions serrate to incised. Umbels compound. Involucre wanting or inconspicuous. Involucel of narrow bractlets, rarely wanting. Flowers white or greenish. Sepals evident. Stylopodium depressed or low-conical. Fruit oval to orbicular or ellipsoid, compressed laterally and often constricted at the commissure; ribs usually prominent, obtuse and corky; oil tubes solitary in the intervals, 2 on the commissure.

The ancient Latin name.

A holarctic genus of about 8 species, one in Nevada.

1. CICUTA DOUGLASII (DC.) Coult. & Rose, Contr. U. S. Nat. Herb. 7: 95, 1900.

   ?Sium ? douglasii DC., Prodr. 4: 125, 1830; Cicuta californica Gray, Proc. Am. Acad. 7: 344, 1868; C. occidentalis Greene, Pittonia 2: 7, 1889; C. purpurata Greene, l.c. 2: 8, 1889; C. vagans Greene, l.c. 2: 9, 1889; C. grandifolia Greene, Leaflets 2: 24, 1909; C. frondosa Greene, l.c.: 236, 1912; C. subfalcata Greene, l.c.: 237, 1912; C.

valida Greene, l.c.: 238, 1912; C. sonnei Greene, l.c.: 239, 1912; C. fimbriata Greene, l.c.: 240, 1912; C. cinicola A. Nels., Bot. Gaz. 54: 141, 1912.

Stout, from a vertical or horizontal tuberous base, to 20 dm. high; leaves oblong to ovate, 1-3-pinnate, the divisions linear-lanceolate to ovate-lanceolate, remotely to coarsely serrate or incised; bractlets ovate-lanceolate to linear, to 15 mm. long; rays 2-6 cm. long; fruit ovoid to globose, 2-4 mm. long; ribs low and corky, usually broader than the reddish brown or homochromous intervals.

Marshes and stream-banks, Alaska to California, E to Alberta and Chihuahua. Nevada: Douglas, Elko, Humboldt, Lander, Washoe and White Pine Cos. Flowers June to October.

18. CYMOPTERUS Raf.

Phellopterus Nutt. ex Coult. & Rose, Contr. U. S. Nat. Herb. 7: 166, 1900. Aulospermum Coult. & Rose, l.c.: 174, 1900; Coriophyllus Rydb., Bull. Torrey Club 40: 69, 1913; Pseudopteryxia Rydb., l.c.: 71, 1913, in part.; Pseudoreoxis Rydb., l.c.: 73, 1913, in part.

Acaulescent or short-caulescent perennial herbs, with a deep-seated thickened root, the stems mainly subterranean (pseudoscapes) bearing the tuft of leaves and peduncles at the surface of the ground. Leaves variously lobed, divided or decompound, glabrous or pubescent, thin to subcoriaceous, petiolate. Umbels compound, congested and globose, or spreading. Involucre present or absent. Involucel usually present, the bractlets conspicuous, herbaceous or partly scarious to hyaline. Flowers yellow, white or purple. Sepals small or obsolete. Stylopodium wanting. Fruit ovoid to oblong, somewhat compressed dorsally; ribs conspicuously

winged or the dorsal ones sometimes wingless by abortion, the wings thin, or thickened and corky toward the outer edge; oil tubes small, 1 to many in the intervals, 2 on the commissure.

Name from the Greek, meaning wave and wing.

A genus of 32 species, widespread in western North America, 14 in Nevada.

KEY TO SPECIES

A. Rays obsolete, the umbels hence discoid; bractlets paleaceous.

B. Pseudoscape absent; oil tubes 2-numerous in the intervals.

C. Leaves bipinnate, pubescent; fruit glabrous . 1. C. CINERARIUS

C. Leaves ternate, glabrous; fruit pubescent . . . 2. C. RIPLEYI

B. Pseudoscape present; oil tubes usually solitary in the intervals 3. C. GLOBOSUS

A. Rays developed, 0.2-9 cm. long, the umbels hence subcompact to spreading, not discoid; bractlets not paleaceous.

D. Bracts usually wanting, never scarious; bractlets conspicuous or inconspicuous, occasionally scarious-margined.

E. Leaves somewhat fleshy or coriaceous, pallid and glaucescent.

F. Pseudoscape inconspicuous or absent, never fleshy, up to 2 cm. long.

G. Leaves ternate; the wings of the fruit not enlarged at the base.

H. Leaves orbicular-reniform in general outline; fruit broadly oval, 7-8 mm. long, 6-7 mm. broad, the wings broader than the body, not corrugated .4. C. GILMANII

H. Leaves oblong-ovate in general outline; fruit ovoid-oblong, 3-5 mm. long, about 2 mm. broad, the wings narrower than the body, corrugated . . 5. C. CORRUGATUS

G. Leaves ternate-pinnate or ternate-bipinnate; the wings of the fruit conspicuously inflated at the base 6. C. JONESII

F. Pseudoscape conspicuous, usually fleshy, up to 16 cm. long.

I. Plants glabrous, the epidermis of the leaf wrinkled in dry specimens . . . . . .7. C. IBAPENSIS

I. Plants scabrous-puberulent . . . . . 8. C. WATSONII

E. Leaves neither fleshy nor coriaceous, green to gray-green, rarely glaucescent.

J. Plants glabrous . . . . . 9. C. HUMBOLDTENSIS

J. Plants hirtellous or rough-puberulent.

K. Leaves oblong to oblong-ovate, 10-45 mm. broad; fruit ovoid to oblong, 6-11 mm. long, 3-8 mm. broad.

L. Involucel bractlets connate below the middle; wings narrower than the body . . . . . .1. C. CINERARIUS

L. Involucel bractlets distinct; wings about twice as wide as the body . . . . . 10. C. ABORIGINUM

K. Leaves narrowly oblong, 5-15 mm. broad; fruit ovoid, 3-6 mm. long and broad.

M. Leaves 2-3-pinnate, the leaflets crowded; rays 1-17 mm. long . . . . . 11. C. BIPINNATUS

M. Leaves 1-2-pinnate, the leaflets not crowded; rays less than 5 mm. long . . . . . .12. C. NIVALIS

D. Bracts conspicuous, scarious, more or less united; bractlets conspicuous, scarious, usually prominently nerved and sometimes united.

N. Bractlets white or whitish, few-nerved; pedicels 5-8 mm. long 13. C. PURPURASCENS

N. Bractlets purple or greenish-white, conspicuously many-nerved; pedicels less than 1 mm. long to obsolete . .14. C. MULTINERVATUS

1. CYMOPTERUS CINERARIUS Gray, Proc. Amer. Acad. 6: 535, 1866.

Aulospermum cinerarium Coult. & Rose, Contr. U. S. Nat. Herb. 7: 178, 1900.

Plants acualescent, the leaves and peduncles arising directing from the root-crown, to 1 dm. high; leaves oblong-ovate, to 4 cm. long, cin-

ereous-hirtellous, bipinnate; the divisions entire to pinnately lobed, the ultimate divisions approximate, distinct, oblong-lanceolate, apiculate, to 4 mm. long; peduncles exceeding the leaves; umbel small, discoid, the rays obsolete or occasionally well-developed, up to 1.5 cm. long; involucel bractlets united below the middle, scarious margined, appearing as involucre in compact heads; flowers white; fruit ovate to cuneate, to 7 mm. long, glabrous; wings slightly constricted at the base in cross-section.

Dry rocky slopes, alpine ridges, Sonora Pass, Sierra Nevada, Sweetwater and White Mts., California and adjacent Nevada (Esmeralda and Mineral Cos.). Flowers June to August.

2. CYMOPTERUS RIPLEYI Barneby, Leafl. W. Bot. 3: 81, 1941. **Frontispiece**

   Cymopterus ripleyi var. saniculoides Barneby, Leafl. W. Bot. 3: 82, 1941.

Plants acaulescent, the leaves and peduncles arising directly from the root-crown, to 15 cm. high; leaves orbicular to deltoid, to 5 cm. long, glabrous, ternate, the leaflets ternately lobed to near the base, cuneate, the lobes trilobulate to occasionally incised, apiculate; peduncles exceeding the leaves; umbels compact, discoid; bractlets small, paleaceous; flowers white or purple; fruit obovoid to cuneate, to 7 mm. long, scaly-tomentose on the commissural surface, pubescent with translucent, multicellular hairs on the dorsal surface, wings somewhat constricted at the base, the dorsal wings reduced to three inconspicuous ridges.

Sandy soil, S Nevada (Esmeralda, Lincoln and Nye Cos.) Flowers April to May.

3. CYMOPTERUS GLOBOSUS Wats., Proc. Am. Acad. 11: 141, 1876.

Cymopterus montanus var. globosus Wats., Bot. King's Expl. 124, in part, 1871.

Peduncles and leaves produced at the surface of the ground on a slender subterranean stem arising from the deep-seated root; leaves glabrous and glaucous, ternate-bipinnate or bipinnate, broadly ovate to 7 cm. long, the leaflets pinnately incised or lobed, the ultimate divisions apiculate, to 6 mm. long; peduncles exceeding the leaves; umbels compact, globose, 2-3 cm. diam.; bractlets scarious, linear; flowers white or purple; fruit glabrous, narrowly cuneate, to 11 mm. long; wings broadest at the apex.

Rocky ridges and sandy valley floors, E California to W Utah. Nevada material seen from Elko, Esmeralda, Lyon, Nye, Ormsby, Washoe and White Pine Cos. Flowers April to June.

4. CYMOPTERUS GILMANII Morton, Journ. Wash. Acad. 25: 309, 1935.

Plants subcaulescent, glabrous, to 2.3 dm. high; leaves orbicular-reniform, to 4.5 cm. long, ternate, the divisions deltoid or triangular, spinulose-dentate, acuminate, confluent, up to 18 mm. long; peduncles exceeding the leaves; rays about 8, to 2 cm. long; bractlets several, distinct, linear-subulate, exceeding the purple or purplish-white flowers; fruit broadly oval, 7-8 mm. long; wings broader than the body, narrowed or broadened at the base.

Desert canyons, mountains about Death Valley, California, and Nevada (Clark Co.). Flowers in April.

5. CYMOPTERUS CORRUGATUS Jones, Amer. Nat. 17: 973, 1883.

Rhysopterus corrugatus Coult. & Rose, Contr. U. S. Nat. Herb. 7:187, 1900.

Plants acaulescent, or with a pseudoscape, glabrous, to 10.5 cm. long; leaves oblong-ovate, to 4 cm. long, pinnate, the leaflets pinnately lobed, the lobes obtuse; peduncles shorter than to equaling the leaves; rays 4-10, to 1 cm. long; bractlets several, scarious to submembranaceous, entire, shorter than the white flowers; fruit ovoid-oblong, to 5 mm. long; wings thin and corrugated, constricted at the base.

Rocky hillsides and sandy flats, SE Oregon to Nevada. Nevada: Churchill, Humboldt, Mineral, Nye, Ormsby, Pershing and Washoe Cos. Flowers April to May.

6. CYMOPTERUS JONESII Coult. & Rose, Rev. N. Am. Umbell. 80, 1888.

Aulospermum jonesii Coult. & Rose, Contr. U. S. Nat. Herb. 7: 178, 1900; Coriophyllus jonesii Rydb., Bull., Torrey Club 40: 70, 1913; Epallageiton jonesii K.-Pol., Bull. Soc. Nat. Mosc. II. 39: 122, 1916.

Plants acaulescent or rarely subcaulescent with the development of a short pseudoscape, to 30 cm. high, glabrous; leaves ovate-oblong, to 7 cm. long, ternate-pinnate or ternate-bipinnate, glaucous, the leaflets entire or pinnately lobed, the lobes triangular, acute, mucronulate, to 5 mm. long, distinct to slightly confluent; peduncles exceeding the leaves; involucel dimidiate, of several triangular to linear, acuminate bractlets, about equaling the purple flowers; fruit broadly ovoid, 7-12 X 10-14 mm.; wings conspicuously inflated at the base, several times as wide as the body.

SE Utah and adjacent Nevada (Lincoln Co.). Flowers May to June.

7. CYMOPTERUS IBAPENSIS Jones, Zoe 3: 302, 1893.

Aulospermum ibapense Coult. & Rose, Contr. U. S. Nat. Herb. 7: 176,

1900; Epallageiton ibapense K.-Pol., Bull. Soc. Nat. Mosc. II. 29: 122. 1916.

Plants subcaulescent with the development of a conspicuous pseudoscape, glabrous, to 20 cm. high; leaves oblong to ovate-oblong, to 9 cm. long, bipinnate, usually glaucous, somewhat fleshy, pallid, in dried specimens appearing roughened through irregular wrinkling of the epidermis, the leaflets remote, pinnately lobed, the lobes rounded to acute, to 8 mm. long, confluent; peduncles exceeding the leaves; involucel of a few inconspicuous, linear bractlets about equaling the white flowers; fruit ovoid-oblong, 4-10 X 4-5 mm.; wings narrow at the base.

Rocky clay ridges and hillsides, W Utah to central Nevada, where seen from Elko, Lander, Lincoln, Nye and White Pine Cos. Flowers May to August.

8. CYMOPTERUS WATSONII (Coult. & Rose) Jones, Contr. W. Bot. 12: 25, 1908. Aulospermum watsonii Coult. & Rose, Contr. U. S. Nat. Herb. 7: 176, 1900; Epallageiton watsonii K.-Pol., Bull. Soc. Nat. Mosc. II. 29: 122, 1916.

Plants subcaulescent with the development of a conspicuous pseudoscape, to 25 cm. high, scabrous-puberulent; leaves ovate-oblong, to 8 cm. long, bipinnate, somewhat fleshy, pallid, glaucescent, the leaflets pinnately lobed, the lobes linear, obtuse, mostly incurved, about 1 mm. long, confluent; peduncles exceeding the leaves; involucel of several linear, acute bractlets, about equaling the white flowers; fruit ovoid to ovoid-oblong, 4-6 X 3-6 mm.; wings narrow at the base.

Dry gravelly or sandy ridges, SE Oregon to Nevada, where seen from Churchill, Elko, Eureka, Humboldt, Lander, Lincoln, Nye and Ormsby Cos.

Flowers March to May.

9. CYMOPTERUS HUMBOLDTENSIS Jones, Contr. W. Bot. 12: 21, 1908.

Pseudocymopterus humboldtensis Mathias, Ann. Mo. Bot. Gard. 17: 325, 1930.

Plants acaulescent, to 10 cm. high, cespitose from a long slender taproot, glabrous; leaves narrowly oblong, to 2.5 cm. long, bipinnate, gray-green, the leaflets entire to pinnately lobed, the lobes linear, obtuse, 1-2 cm. long; peduncles exceeding the leaves; involucel of linear, acute, sometimes purplish-tinged bractlets; umbels compact, the rays less than 5 mm. long; fruit oblong, 4-6 mm. long, 3-4 mm. broad; wings linear.

Moist meadows and rocky slopes, high mts. of S Idaho and Nevada (Elko, Nye and White Pine Cos.). Flowers July to August.

10. CYMOPTERUS ABORIGINUM Jones, Contr. W. Bot. 12: 22, 1908.

Cymopterus aboriginum var. ovalis Jones, Contr. W. Bot. 12: 22, 1908; C. aboriginum var. subternatus Jones, l.c.: 23, 1908; C. aboriginum var. oblongus Jones, l.c.; Aulospermum aboriginum Mathias, Ann. Mo. Bot. Gard. 17: 352, 1930.

Plants acaulescent, to 35 cm. high; leaves oblong, to 10 cm. long, ternate-bipinnate to tripinnate, gray-green, hirtellous, the leaflets entire to pinnately lobed, the lobes linear, acute, to 8 mm. long, distinct to slightly confluent; peduncles equaling or exceeding the leaves; involucel of several linear, subscarious, acute to acuminate, puberulent bractlets shorter than or equaling the white flowers; umbels subcompact, the rays to 20 mm. long, the central umbellets sterile; fruit ovoid to oblong, 6-11 X 5-8 mm.; wings linear.

Rocky ridges, E California, in the Death Valley region, and adjacent Nevada (Clark and Ormsby Cos.). Flowers April to May.

11. CYMOPTERUS BIPINNATUS Wats., Proc. Amer. Acad. 20: 368, 1885. Pseudocymopterus bipinnatus Coult. & Rose. Rev. N. Am. Umbell. 75, 1888; Cynomarathrum macbridei A. Nels. Bot. Gaz. 54: 142, 1912; Pseudoreoxis bipinnatus Rydb., Bull. Torrey Club 40: 73, 1913.

Plants cespitose, acaulescent, to 2.6 dm. high; leaves narrowly oblong, to 6.5 cm. long, bipinnate, gray-green, rough-puberulent, the leaflets entire to pinnately lobed, the lobes obtuse, crowded, to 4 mm. long; peduncles greatly exceeding the leaves; bractlets linear, acute, about equaling the white flowers; rays few, to 17 mm. long; fruit ovoid-oblong; 3-6 mm. long; wings often broader at the base.

Rocky ridges, E Oregon to Montana and Utah. Nevada material seen from Elko Co. Flowers May to June.

12. CYMOPTERUS NIVALIS Wats., Bot. King's Expl. 123, 1871. Pseudoreoxis nivalis Rydb., Bull. Torrey Club 40: 73, 1913; Pseudocymopterus nivalis Mathias, Ann. Mo. Bot. Gard. 17: 327, 1930.

Plants acaulescent, to 15 cm. high, cespitose from a slender taproot; leaves narrowly oblong, to 5 cm. long, pinnate, rough-puberulent, the leaflets entire to pinnately lobed, remote, the lobes linear to ovate, acute, to 10 mm. long, distinct; peduncles exceeding the leaves; involucel dimidiate, of linear, acute, subconnate bractlets about equaling the white or pinkish flowers; umbels compact, the rays several, less than 5 mm. long; mature fruit unknown, the immature ovoid-oblong, about 1.5 mm. long; wings thin.

Central Idaho to NE Nevada (Elko Co.). Flowers July to August.

13. CYMOPTERUS PURPURASCENS (Gray) Jones, Zoe 4: 277, 1893.

Cymopterus montanus var. purpurascens Gray, Bot. Ives Exped. 15, 1860; C. utahensis Jones, Proc. Calif. Acad. II. 5: 684, 1895; Phellopterus purpurascens Coult. & Rose, Contr. U. S. Nat. Herb. 7: 168, 1900; P. utahensis Wooton & Standley, l.c. 16: 158, 1913.

Acaulescent or subcaulescent, to 15 cm. high, from a slender taproot crowned with persistent leaf-bases, glabrous; leaves ovate-oblong, to 2.5 cm. long, bipinnate or pinnate or occasionally ternate-pinnate, pallid, fleshy, the leaflets entire to pinnately lobed, the lobes rounded to acute; peduncles equaling or exceeding the leaves; involucre of conspicuous white bracts, connate below the middle, 1-5-nerved; rays 3-5, up to 10 mm. long; bractlets similar to the bracts, equaling or exceeding the purplish flowers; fruit broadly ovoid, 8-18 mm. long; wings twice or thrice the width of the body, narrow to slightly enlarged at the base.

Dry, rocky clay slopes, S Idaho to SE California, E to Utah and Arizona. Nevada: Clark, Elko, Esmeralda, Humboldt, Lincoln, Mineral, Pershing and White Pine Cos. Flowers March to May.

14. CYMOPTERUS MULTINERVATUS (Coult. & Rose) Tidestrom, Proc. Biol. Soc. Wash. 48: 41, 1935.

Phellopterus multinervatus Coult. & Rose, Contr. U. S. Nat. Herb. 7: 169, 1900.

Acaulescent or subcaulescent to 2 dm. high, from a stout taproot; pseudoscapes several; leaves ovate-oblong, glabrous, 1-2-pinnate or occasionally ternate-pinnate, pale glaucous-green, to 8.5 cm. long, the leaf-

lets entire to pinnately lobed, the lobes confluent; peduncles equaling or exceeding the leaves; involucre forming a scarious sheath, or of 1 or 2 nerved bracts or a conspicuous cup; involucel of several, broad, purple, sometimes white-margined, several-nerved bractlets united at the base, about equaling the purple flowers; fruit ovoid to ovoid-oblong, 8-17 mm. long; wings slightly enlarged at base, twice or thrice the width of the body.

Dry desert plains and hills, SE California to Baja California, E to Utah, W Texas and Sonora. Nevada material seen from Clark and Nye Cos. Flowers February to May.

19. PTERYXIA Nutt.

Pseudopteryxia Rydb., Bull. Torrey Club 40: 71, 1913, in part.

Pseudoreoxis Rydb., l.c.: 73, 1913, in part.

Low cespitose perennials, with a deep-seated root, the stems clothed at the base with the persistent petiole sheaths. Leaves 1-2- pinnately or ternate-pinnately decompound into small linear, often pungent divisions. Involucre none. Involucels of narrow herbaceous bractlets. Flowers yellow or rarely white or purple. Sepals prominent. Stylopodium wanting. Fruit narrowly oblong to ovoid, compressed dorsally; lateral ribs winged, thin, some or all of the dorsal similarly winged; oil tubes 1 to several in the intervals, several on the commissure.

Name from two Greek words meaning fern and the chameleon plant.

A genus of 5 species, 3 in Nevada.

KEY TO SPECIES

A. Leaves broadly ovate to ovate-oblong, pinnately or ternate-pinnately decompound.

B. Umbels compact, the rays short; fruit 3-5 mm. broad
1a. P. TEREBINTHINA var. CALCAREA

B. Umbels spreading, the rays up to 8 cm. long; fruit 5-10 mm. broad
1b. P. TEREBINTHINA var. CALIFORNICA

A. Leaves narrowly oblong, ternate-bipinnate or 2-3-pinnate.

C. Plants caulescent; leaves ternate-bipinnate or 3-pinnate; bractlets inconspicuous, 1-3 mm. long . . . . . 2. P. PETRAEA

C. Plants acaulescent; leaves bipinnate; bractlets conspicuous, 2-12 mm. long . . . . . 3. P. HENDERSONII

1a. PTERYXIA TEREBINTHINA var. CALCAREA (Jones) Mathias, Ann. Mo. Bot. Gard. 17: 334, 1930.

Cymopterus calcareus Jones, Contr. W. Bot. 8: 32, 1898; Pteryxia calcarea Coult. & Rose, Contr. U. S. Nat. Herb. 7: 173, 1900.

Acaulescent to subcaulescent; leaves gray-green, ovate-oblong to broadly ovate, glabrous, pinnately or ternate-pinnately decompound, to 18 cm. long, the leaflets oblong; involucel dimidiate, the bractlets linear to rarely obovate, acute, entire or rarely toothed; umbels compact, the rays subequal, usually less than 7 cm. long; flowers yellow; fruit ovoid to ovoid-oblong, 5-8 X 3-5 mm.; dorsal wings equaling or shorter than the lateral.

Dry sandy or gravelly soils, Montana and Colorado to S Idaho, Utah and Nevada (Elko Co.). Flowers May to July.

1b. PTERYXIA TEREBINTHINA var. CALIFORNICA (Coult. & Rose) Mathias, Ann. Mo. Bot. Gard. 17: 337, 1930.

Pteryxia californica Coult. & Rose, Contr. U. S. Nat. Herb 7: 172, 1900.

Short caulescent; leaves gray-green, ovate-oblong to broadly ovate, glabrous, pinnately or ternate-pinnately decompound, to 18 cm. long, the leaflets oblong, not as rigid as in the preceding; involucel dimidiate, the bractlets linear to rarely obovate, acute, entire or rarely toothed; umbels spreading, the rays up to 8 cm. long; flowers yellow; fruit suborbicular, 5-8 mm. long, about as broad; dorsal wings usually equaling the lateral.

Dry flats and desert canyons, N to central California and N Nevada. Nevada: Douglas, Elko, Lander, Storey and Washoe Cos. Flowers May to July.

2. PTERYXIA PETRAEA (Jones) Coult. & Rose, Contr. U. S. Nat. Herb. 7: 172, 1900.

Cymopterus petraeus Jones, Contr. W. Bot. 8: 32, 1898.

Caulescent, to 45 cm. high; leaves narrowly oblong to 17 cm. long, ternate-bipinnate to tripinnate, the leaflets linear, acute, to 8 mm. long; involucel dimidiate, the bractlets linear, to 3 mm. long, rays 3-7, very unequal, to 55 mm. long; flowers yellow; fruit ovoid to ovoid-oblong, to 7 mm. long; wings narrower than to equaling the body.

Rocky cliffs and canyon walls, S Idaho and central Nevada to SE Oregon, E California and N Arizona. Nevada: Douglas, Elko, Eureka, Humboldt, Mineral, Nye, Pershing and Washoe Cos. Strongly aromatic. Flowers May to July.

3. PTERYXIA HENDERSONII (Coult. & Rose) Math. & Const., Bull. Torrey Club 69: 248, 1942.

Pseudocymopterus hendersoni Coult. & Rose, Contr. U. S. Nat. Herb. 7:

190, 1900; Pseudopteryxia longiloba Rydb., Bull. Torrey Club 40: 72, 1913; P. hendersonii Rydb., Fl. Rocky Mts. 624, 1917; Pseudocymopterus anisatus var. longilobus Tidestrom, Contr. U. S. Nat. Herb. 25: 399, 1925.

Acaulescent, to 40 cm. high; leaves narrowly oblong, to 9.5 cm. long, bipinnate, the leaflets linear, acute, to 15 mm. long; involucel dimidiate, the bractlets conspicuous, linear-lanceolate, entire or bifid; rays 4-8, spreading, slightly unequal, to 30 mm. long; flowers yellow; fruit ovoid-oblong, 4-7 X 2-4 mm.; wings shorter than the body.

Rocky slopes and canyon walls, Montana to N New Mexico, W to S Idaho and E Nevada (Elko and White Pine Cos.). Flowers June to July.

20. ANGELICA L.

Stout and fistulose, usually erect, glabrous to tomentose perennials from stout taproots. Leaves large, ternate-pinnately or pinnately compound, with broad and distinct, serrate to lobed leaflets. Flowers in compound umbels, white, pink or purplish. Involucre usually none. Involucel of numerous entire bractlets or absent. Sepals minute or obsolete. Stylopodium low-conical. Fruit compressed dorsally; ribs filiform to corky-winged; oil tubes numerous to few; seed face plane to concave.

Name from angelic, because of its cordial and medicinal properties.

A holarctic genus of more than 50 species, 5 in Nevada.

KEY TO SPECIES

A. Leaves ternate-pinnately decompound, the divisions linear to linear-oblong, 2-10 cm. long, 2-8 mm. broad . . . . . 1. A. LINEARILOBA

A. Leaves ternately, pinnately, or ternate-pinnately divided with oval to lanceolate leaflets.

B. Ovaries pubescent or roughened; petals pubescent or scabrous dorsally.

C. Leaves oblong; rays 7-14; fruit 4-5 mm. long, 2-3mm. broad
2. A. KINGII

C. Leaves ovate to deltoid; rays 25-45; fruit 7-14 mm. long, 4-9 mm. broad.

D. Foliage and inflorescence glabrate to villous; leaflets serrate to entire; bractlets of the involucel several, villous
3. A. BREWERI

D. Foliage and inflorescence scaberulous; leaflets spinulose-dentate; involucel wanting . . . . . 4. A. SCABRIDA

B. Ovaries glabrous; petals glabrous . . . . . 5. A. ARGUTA

1. ANGELICA LINEARILOBA Gray, Proc. Am. Acad. 7: 347, 1868.

Plants stout, to 15 dm. tall, foliage scabrous to glabrate, inflorescence scabrous; leaves ternate-pinnately decompound, the leaflets linear to linear-oblong, to 10 cm. long; rays 20-40, subequal, to 7 cm. long; bractlets none; flowers white or pinkish, the petals glabrous to scaberulous; ovary glabrous to scabrous; fruit oblong to cuneate, 10-13 mm. long; dorsal ribs narrowly winged, the lateral broader than the dorsal and about equaling the body; oil tubes 1-2 in the intervals.

Meadows and talus slopes, central and S Sierra Nevada, Sweetwater, White and Panamint ranges, California and adjacent Nevada (Esmeralda Co.). Flowers June to August.

2. ANGELICA KINGII (Wats.) Coult. & Rose, Contr. U. S. Nat. Herb. 7: 158, 1900.

Selinum kingii Wats., Bot. King's Expl. 126, 1871.

Plants stout, to 9 dm. high, foliage glabrous to scaberulous, inflorescence scaberulous to glabrous; leaves ternate-pinnate, the leaflets

lanceolate to ovate-lanceolate, entire to remotely serrate; rays 7-14, unequal, to 10 cm. long, webbed at the base; bractlets absent; flowers white, the petals pubescent, the ovary hispid; fruit oblong, 4-5 mm. long; dorsal ribs narrowly winged, the lateral a little broader but much narrower than the body; oil tubed 1-2 in the intervals.

Stream banks and moist bottoms, E California to Utah and Idaho. Nevada: Clark, Elko, Esmeralda, Lander, Mineral, Nye and White Pine Cos. Flowers June to October.

3. ANGELICA BREWERI Gray, Proc. Am. Acad. 7: 348, 1868.

Plants stout, to 12 dm. tall, foliage and inflorescence glabrate to somewhat villous; leaves ternately or ternate-pinnately divided, the leaflets lanceolate, to 12 cm. long, serrate to entire; rays 25-40, unequal, to 8 cm. long; bractlets linear, villous; flowers white, the petals villous; ovary densely villous; fruit oblong to oval, 8-12 mm. long, more or less villous; dorsal ribs narrowly winged, the lateral broader and about equaling the body; oil tubes solitary in the intervals.

Dry rocky slopes at higher elevations, N and central Sierra Nevada, California and adjacent Nevada (Humboldt and Washoe Cos.). Flowers July to September.

4. ANGELICA SCABRIDA Clokey & Mathias ex Clokey, Bull. So. Calif. Acad. 37: 8, 1938.

Plants stout, to 15 dm. high, the foliage and inflorescence scaberulous; leaves ternate-pinnate, to 3.5 dm. long, the leaflets lanceolate to ovate-lanceolate, acute, to 16 cm. long, spinulose-dentate; involucel of one linear bractlet or wanting; rays 25-32, subequal, to 7.5 cm. long,

webbed at the base; flowers white, the petals scabrous; ovaries scabrous; fruit oblong to cuneate, 8-14 X 4-5 mm., sparingly scabrous to glabrate; dorsal ribs filiform to obsolete, the lateral broader than the dorsal but narrower than the body; oil-tubes solitary in the intervals.

Rocky ravines and moist hillsides, Charleston Mts., Clark Co., Nevada. Known only from Clark Co. Flowers July to August.

5. ANGELICA ARGUTA Nutt. in T. & G., Fl. N. Am. 1: 620, 1840.

Angelica lyallii Wats., Proc. Am. Acad. 17: 374, 1882; A.piperi Rydb., Fl. Rocky Mts. 631, 1917.

Plants stout, to 20 dm. tall, foliage and inflorescence glabrous to scaberulous; leaves ternate-pinnate or bipinnate, or rarely simply pinnate, the leaflets ovate to lanceolate, to 15 cm. long, spinulose-serrate; rays 18-45, subequal, to 8 cm. long, webbed at the base; bractlets absent, or few and filiform; flowers white or pinkish, the petals and ovary glabrous; fruit oval to orbicular or obovate, 4-7 mm. long; dorsal ribs narrowly winged, the lateral broader and about equaling the body; oil tubes solitary in the intervals.

Moist places in woods, British Columbia to N California, E to Alberta and Wyoming. Nevada: Churchill, Elko and Humboldt Cos. Flowers June to September.

21. SPHENOSCIADIUM Gray

Thick-rooted perennial herbs with stout, nearly simple stems, glabrous up to the tomentose inflorescence. Leaves 1-2-pinnately or ternate-pinnately compound with bladdery dilated petioles. Umbels compound. Involucre none. Involucel of numerous deciduous linear-setaceous bractlets.

Flowers white or purplish. Sepals obsolete. Stylopodium small, conial. Fruit compressed dorsally, cuneate-obovate, winged above; oil tubes solitary in the intervals, 2 on the commissure.

Name from two Greek words meaning wedge and umbrella.

A monotypic genus, native of western North America.

1. SPHENOSCIADIUM CAPITELLATUM Gray, Proc. Amer. Acad. 6: 537, 1866.

Stems to 18 dm. high; leaves scabrous to glabrate with linear-oblong to ovate-lanceolate divisions, remotely serrate to coarsely dentate, incised or pinnatifid; rays 4-18, about equal, to 10 cm. long, densely tomentose; umbellets globose; flowers sessile, pubescent; fruit cuneate-obovate, 5-8 mm. long.

Moist places, E Oregon to S California, E to Idaho and W Nevada, where seen from Lyon, Mineral, Ormsby, Storey and Washoe Cos. Flowers July to October.

22. LOMATIUM Raf.

Cogswellia Spreng. in R. & S., Syst. Veg. 6: 588, 1820; Leptotaenia Nutt. ex T. & G., Fl. N. Am. 1: 629, 1840; Leibergia Coult. & Rose, Contr. U. S. Nat. Herb 3: 575, 1896; Cynomarathrum Nutt. ex Coult. & Rose, l.c. 7: 244, 1900; Peucedanum of American authors, not of L. 1753.

Low and short-caulescent of acaulescent, or tall and caulescent, simple or branching, perennial herbs, with slender or thickened subfusiform or tuberous roots, and ternate, pinnate or decompound leaves. Flowers in compound umbels, yellow, white or purple. Involucre mostly none; involucel present or rarely wanting. Sepals small. Stylopodium none. Fruit compressed dorsally; dorsal ribs filiform, the laterals winged, thin to

corky; oil tubes 1 to several in the intervals or rarely obsolete, 2-10 on the commissure. Seed face plane or slightly concave.

Name from the Greek meaning border, referring to the winged fruit.

A genus of about 80 species, native to western North America, 14 in Nevada.

KEY TO SPECIES

A. Peduncles conspicuously swollen and inflated at the apex
14. L. NUDICAULE

A. Peduncles not conspicuously inflated at the apex, slender or uniformly fistulose; rays sometimes dilated into a prominent disc.

B. Plants mostly low, from globose or somewhat elongate or irregular tubers.

C. Plants acaulescent; oil tubes 2-4 in the intervals
1. L. MONTANUM

C. Plants caulescent; oil tubes solitary in the intervals
2. L. CIRCUMDATUM

B. Plants usually stouter, from more or less thickened elongate taproots, sometimes with a very deep-seated tuber.

D. Leaves decompound, dissected into numerous small divisions.

E. Ovaries and young (sometimes mature) fruit variously pubescent or roughened.

F. Bractlets with a conspicuous scarious margin, never tomentose nor villous . . . . . 3a. L. NEVADENSE var. NEVADENSE

F. Bractlets not conspicuously scarious-margined, more or less tomentose or villous.

G. Plants acaulescent, usually low, up to 3 dm. high.

H. Plants more or less villous throughout; petioles shorter than the leaf-blades; flowers usually yellow . . . . . 5. L. MACDOUGALII

H. Plants hoary-pubescent, never villous; petioles longer than the leaf-blades; flowers usually purple . . . . . 6. L. MOHAVENSE

G. Plants short-caulescent, up to 5 dm. high.

I. Petioles wholly sheathing; fruit oblong to oblong-ovate; involucel bractlets not reflexed
4b. L. PLUMMERAE var. SONNEI

I. Petioles sheathing about to the middle; fruit narrowly oblong; involucel bractlets becoming reflexed at maturity . . . . . 7. L. MACROCARPUM

E. Ovaries and fruit glabrous.

J. Plants more or less pubescent.

K. Bractlets more or less tomentose or villous
7. L. MACROCARPUM

K. Bractlets glabrous or minutely and sparingly roughened.

L. Fruit 12-16 mm. long, 6-10 mm. broad, the wings very narrow and corky-thickened . . . . 8. L. DISSECTUM var. MULTIFIDUM

L. Fruit 5-13 mm. long, 3-7 mm. broad, the wings thin and membranaceous.

M. Flowers yellow; plants mostly low, less than 3 dm. high . . . . . 4b. L. PLUMMERAE var. SONNEI

M. Flowers white; plants usually taller, up to 4.5 dm. high.

N. Wings narrower than the body of the fruit; dorsal ribs inconspicuous . . . 3b. L. NEVADENSE var. PARISHII

N. Wings broader than the body of the fruit; dorsal ribs conspicuous . . . . 3c. L. NEVADENSE var. PSEUDORIENTALE

J. Plants glabrous or occasionally scaberulous, never pubescent.

O. Bractlets obovate, sometimes connate . .1. L. MONTANUM

O. Bractlets filiform to linear-lanceolate, rarely oblanceolate-acuminate, never obovate.

P. Leaflets filiform, 0.1-0.25 mm. broad; involucel of filiform, usually entire bractlets, usually shorter

than the flowers . . . . . 9a. L. GRAYI
var. GRAYI

P. Leaflets linear to oblong, 0.5-1 mm. broad; involucel of dimidiate, linear-lanceolate acute bractlets, equaling or exceeding the flowers. 4a. L. PLUMMERAE
var. PLUMMERAE

D. Leaves with mostly few or large divisions, ternately or pinnately divided, the divisions mostly remote.

Q. Plants acaulescent or short-caulescent; leaves 1-2-pinnate, rarely 3-pinnate.

R. Leaves 2-3-pinnate.

S. Peduncles equaling or somewhat exceeding the leaves; pedicels 10-17 mm. long; wings equaling or somewhat broader than the body of the fruit . . . 10. L. PARRYI

S. Peduncles usually greatly exceeding the leaves; pedicels 3-7 mm. long; wings about half as broad as the body of the fruit.

T. Leaf divisions remote, 10-50 mm. long; plants tall, stout . . . . . 11a. L. NUTTALLII
var. NUTTALLII

T. Leaf divisions crowded, 1-4 mm. long; plants low, slender . . . . . 9b. L. GRAYI
var. DEPAUPERATUM

R. Leaves pinnate, rarely bipinnate . . . .11b. L. NUTTALLII
var. ALPINUM

Q. Plants mostly caulescent, tall; leaves ternate-pinnately or quinate-pinnately divided.

U. Ovaries and young fruit glabrous.

V. Leaves biternate; bractlets shorter than the pedicels; fruit 7-14 mm. broad, the wings equaling or broader than the body of the fruit . . . . . 12. L. SIMPLEX

V. Leaves ternate-pinnate; bractlets about equaling the pedicels; fruit 3-5 mm. broad, the wings narrower than the body of the fruit . . . . . 13a. L. TRITERNATUM
var. TRITERNATUM

U. Ovaries and young fruit pubescent . . 13b. L. TRITERNATUM
var. MACROCARPUM

1. LOMATIUM MONTANUM Coult. & Rose, Contr. U. S. Nat. Herb. 7: 214, 1900.

Cogswellia montana Jones, Contr. W. Bot. 12: 34, 1908.

Acaulescent, to 3 dm. tall, glabrous, cespitose from a thickened taproot or a subglobose tuber; leaves ternate, then 2-3-pinnate, the leaflets crowded, oblong, to 1 cm. long; rays 5-15, unequal, to 6.5 cm. long; bractlets obovate, distinct or united below, purplish; flowers yellow; fruit oblong to oval, 5-12 mm. long; wings narrower than to about equaling the body; oil tubes 2-4 in the intervals.

Mountain slopes and ridges, E Oregon to S Saskatchewan, S to Wyoming. Nevada material seen from Elko County. Flowers April to June.

2. LOMATIUM CIRCUMDATUM (Wats.) Coult. & Rose, Contr. U. S. Nat. Herb. 7: 213, 1900.

Peucedanum circumdatum Wats., Proc. Am. Acad. 22: 474, 1887; Cogswellia circumdata Jones, Contr. W. Bot. 12: 33, 1908.

Caulescent to 3.5 dm. tall, glabrous to somewhat pubescent, from an elongate to subglobose tuber; leaves ternate, then 1-2-pinnate, the leaflets linear to 1 cm. long; rays 7-12, ascending, to 8 cm. long; bractlets obovate, acute, prominently nerved, sometimes connate; flowers yellow; fruit oblong, 6-9 mm. long, glabrous; wings much narrower than the body; oil tubes solitary in the intervals.

Rocky ridges, E Washington to SE Oregon and adjacent Idaho and Nevada (Elko Co.). Flowers May to June.

3a. LOMATIUM NEVADENSE (Wats.) Coult. & Rose, Contr. U. S. Nat. Herb. 7: 220, 1900 var. NEVADENSE.

Peucedanum nevadense Wats., Proc. Amer. Acad. 11: 143, 1876; P. neva-

dense var. cupulatum Jones, Contr. W. Bot. 8: 29, 1898.

Acaulescent or short-caulescent, to 4.5 dm. tall, pubescent, from a long slender tap root, sometimes with a deep-seated tuber; leaves tripinnate, the leaflets crowded, oblong, to 40 mm. long; rays 8-22, spreading, unequal, to 8 cm. long; bractlets conspicuous, linear and distinct or obovate and connate, scarious-margined; pedicels 3-10 mm. long; flower white, rarely purplish; fruit ovate to oblong-ovate, 6-8 mm. long, more or less puberulent; wings narrower than the body; oil tubes 2-9 in the intervals.

Dry rocky and sandy slopes, Oregon and E California to W Colorado and S Arizona. Nevada: Clark, Douglas, Elko, Eureka, Humboldt, Lincoln, Mineral, Nye, Ormsby, Pershing, Storey and Washoe Cos., 4500-9200 ft. Flowers March to June.

3b. LOMATIUM NEVADENSE var. PARISHII (Coult. & Rose) Jepson, Madroño 1: 156, 1924.

Peucedanum parishii Coult. & Rose, Bot. Gaz. 13: 209, 1888; Lomatium parishii Coult. & Rose, Contr. U. S. Nat. Herb. 7: 235, 1900; Cogswellia nevadensis var. parishii Jones, Contr. W. Bot. 12: 33, 1908; C. decipiens Jones, l.c.:38, 1908; C. parishii Coult. & Rose, Contr. U. S. Nat. Herb. 12: 450, 1909.

Mostly taller than var. nevadense; leaflets sometimes elongate, up to 35 mm. long; involucel sometimes reduced to a sheath or a single bractlet; rays usually longer, up to 5.5 cm. long; pedicels 3-12 mm. long; ovaries glabrous; fruit 7-10 X 3-6 mm., glabrous; oil tubes 1-4 in the intervals.

Dry slopes, SE Oregon and adjacent Nevada to SE California, W New

Mexico and Sonora. Nevada: Clark, Mineral, Nye, Ormsby, Storey, and Washoe Cos. Flowers March to June.

3c. LOMATIUM NEVADENSE var. PSEUDORIENTALE (Jones) Munz, Man. S. Calif. Bot. 360, 1935.

Cogswellia nevadensis var. pseudorientalis Jones, Contr. W. Bot. 12: 37, 1908.

Similar to var. parishii, but the petioles more prominently scarious-margined; wings broader than the body, the dorsal ribs evident.

Dry ground, NW Arizona to California and adjacent Nevada (Clark Co.). Flowers March to June.

4a. LOMATIUM PLUMMERAE Coult. & Rose, Contr. U. S. Nat. Herb. 7: 232, 1900 var. PLUMMERAE.

Peucedanum plummerae Coult. & Rose, Bot. Gaz. 14: 278, 1889; Cogswellia plummerae Jones, Contr. W. Bot. 12: 34, 1908.

Short-caulescent to 3.5 dm. tall, glabrous, from a long slender taproot; leaves ternate, then bipinnate, the leaflets linear to oblong, to 7 mm. long; rays 10-25, ascending, unequal, to 7.5 cm. long; bractlets dimidiate, linear-lanceolate, acute, distinct or connate to above the middle, scarious at least on the margin, prominently nerved, entire or toothed; pelicels 3-8 mm. long; flowers yellow or purplish; fruit oblong to oblong-ovate, 9-13 mm. long, usually acute at the apex, glabrous; wings narrower than the body; oil tubes 1, rarely 2-3.

Sandy slopes, Sierra Co. to Shasta Co., California and adjacent Nevada (Washoe Co.). Flowers May to June.

4b. LOMATIUM PLUMMERAE var. SONNEI (Coult. & Rose) Jepson, Madroño 1: 157, 1924.

Lomatium sonnei Coult. & Rose, Contr. U. S. Nat. Herb. 7: 236, 1900; Cogswellia sonnei Jones, Contr. W. Bot. 12: 34, 1908.

Plants pubescent; pedicels up to 1 cm. long; fruit glabrous or pubescent.

Sandy and rocky soil, W. Nevada and adjacent California. Nevada: Mineral, Ormsby, Storey and Washoe Cos. Flowers March to June.

5. LOMATIUM MACDOUGLAII Coult. & Rose, Contr. U. S. Nat. Herb. 7: 233, 1900.

Lomatium jonesii Coult. & Rose, Contr. U. S. Nat. Herb. 7: 233, 1900; Cogswellia macdougali Jones, Contr. W. Bot. 12: 34, 1908; C. jonesii Jones, l.c.

Acaulescent, to 3 dm. tall, villous throughout, from a long slender taproot; leaves ternate, then tripinnate, the leaflets crowded, linear to ovate, to 5 mm. long; petioles usually wholly sheathing; rays 2-14, spreading, to 6 cm. long; bractlets scarious, linear, usually distinct, villous; pedicels 3-10 mm. long; flowers yellow, somewhat purplish-tinged; fruit ovate to suborbicular, 6-11 mmm long, pubescent; wings narrower than the body; oil tubes 1-4 in the intervals.

Dry rocky slopes among sagebrush and in pine woods, central Oregon and E California to W Wyoming and central Arizona. Nevada: Churchill, Elko, Lander, Lincoln, Mineral, Nye, Pershing and White Pine Cos., 5,000-10,000 ft. Flowers March to June.

6. LOMATIUM MOHAVENSE Coult. & Rose, Contr. U. S. Nat. Herb. 7: 234, 1900.

Peucedanum mohavense Coult. & Rose, Rev. N. Am. Umbell 62, 1888; P. argense Jones, Contr. W. Bot. 8: 30, 1898; Lomatium argense Coult. & Rose, Contr. U. S. Nat. Herb. 7: 234, 1900; Cogswellia mohavensis Jones, Contr. W. Bot. 12: 34, 1908; C. argensis Coult. & Rose, Contr. U. S. Nat. Herb. 12: 449, 1909.

Acaulescent to 3 dm. tall, short hoary-pubescent, from a long slender taproot; leaves 3-4-pinnate, the leaflets crowded, linear, to 5 mm. long; rays 10-16, subequal, to 4.5 cm. long; bractlets linear, acute, sometimes inconspicuously scarious-margined; pedicels 1-10 mm. long; flowers purple, rarely yellow; fruit ovate to orbicular, 4.5-9 mm. long, pubescent; wings narrower than or equaling the body; oil tubes 1-4 in the intervals.

Dry gravelly and sandy desert slopes, S California and adjacent Nevada to N Arizona. Nevada material from Esmeralda Co. Flowers March to May.

7. LOMATIUM MACROCARPUM (H. & A.) Coult. & Rose, Contr. U. S. Nat. Herb. 7: 217, 1900.

Ferula macrocarpa H. & A., Bot. Beech. Voy. 348, 1838; Peucedanum macrocarpum Nutt. ex T. & G., Fl. N. Am. 1: 627, 1840; Cogswellia macrocarpa Jones, Contr. W. Bot. 12: 33, 1908.

Short-caulescent, to 5 dm. tall, densely tomentose to villous or glabrate, purplish especially below, from a slender or somewhat swollen taproot; leaves ternate, then 2-3-pinnate, the leaflets confluent, oblong to linear, to 7 mm. long; rays 5-25, spreading, to 8.5 cm. long; bractlets dimidiate, linear-lanceolate, acute, becoming reflexed in the mature plant; pedicels 1-14 mm. long, spreading; flowers white, yellow or purp-

lish; fruit narrowly oblong, 9-20 X 2-8 mm. the ovaries and young fruit glabrous to villous, the mature fruit glabrous or glabrate; wings narrower than the body; oil tubes 1-3 in the intervals.

Dry hills and clay flats, British Columbia to California, E to Manitoba and North Dakota. Nevada: Eureka, Humboldt, Ormsby, Pershing, Washoe and White Pine Cos. Flowers March to June.

8. LOMATIUM DISSECTUM var. MULTIFIDUM (Nutt.) Math. & Const., Bull Torrey Club 69: 246, 1942.

Leptotaenia multifida Nutt. ex T. & G., Fl. N. Am. 1: 630, 1840.

Caulescent, rarely acaulescent, to 14 dm. high, from a stout thickened root bearing a stout caudex, the foliage puberulent or rarely glabrate, otherwise glabrous; leaves ternate, then 2-4-pinnate, the leaflets linear-oblong to 22 mm. long; involucre occasionally present; involucel of several linear, entire bractlets, shorter than or longer than the flowers; rays numerous, spreading, to 13 cm. long, subequal; pedicels 4-20 mm. long, exceeding the sterile flowers; flowers purple or yellow; fruit oblong-oval, 12-16 X 6-10 mm., glabrous, wings much narrower than the body, very thick and corky; oil tubes obscure.

Rocky soil, British Columbia to S California, E to Alberta, Colorado and Arizona. Nevada: Elko, Eureka, Humboldt, Lander, Lyon, Storey, Washoe and White Pine Cos., 5000-6500 ft. Flowers April to June.

9a. LOMATIUM GRAYI Coult. & Rose, Contr. U. S. Nat. Herb. 7: 229, 1900 var. GRAYI.

Peucedanum grayi Coult. & Rose, Bot. Gaz. 13: 209, 1888; Cogswellia millefolia Jones, Contr. W. Bot. 12: 35, 1908; C. grayi Coult. & Rose,

Contr. U. S. Nat. Herb. 12: 450, 1909.

Acaulescent or short-caulescent, to 6 dm. tall, from a long thickened taproot; leaves 1-2-ternate or quinate, then 2-3-pinnate, glabrous to scaberulous, the leaflets crowded, linear to filiform, to 11 mm. long; rays 7-22, spreading, to 15 cm. long; bractlets filiform, entire, occasionally toothed, rarely deciduous; pedicels 6-22 mm. long; flowers yellow; fruit ovate-oblong to oblong, 7-16 mm. long, glabrous; wings thin, narrower than to equaling the body; oil tubes solitary, rarely 2-3, in the intervals.

Dry rocky slopes, E Washington and Oregon to W Wyoming and Colorado. Nevada material seen from Elko County. Flowers April to May.

9b. LOMATIUM GRAYI var. DEPAUPERATUM (Jones) Mathias, Ann. Mo. Bot. Gard. 25: 270, 1937.

Cogswellia millefolia var. depauperata Jones, Contr. W. Bot. 12: 38, 1908.

Usually lower than variety grayi; leaves dissected into few, small, remote, linear leaflets.

Rocky soil, W Utah and adjacent Nevada (Elko and White Pine Cos.). Flowers April to May.

10. LOMATIUM PARRYI (Wats.) Macbr., Contr. Gray Herb. 56: 35, 1918.

Peucedanum parryi Wats., Proc. Am. Acad. 11: 143, 1876; Cynomarathrum parryi Coult. & Rose, Contr. U. S. Nat. Herb. 7: 246, 1900; Cogswellia parryi Jones, Contr. W. Bot. 12: 32, 1908.

Acaulescent, glabrous, to 4 dm. tall, from a long, somewhat stout taproot; leaves narrowly oblong, 2-3-pinnate, the leaflets linear, to 9

mm. long; rays about 15, suberect, subequal, 2-4.5 cm. long; bractlets linear, acute, subscarious, sometimes cleft; pedicels 10-17 mm. long; flowers yellow; fruit oblong, 9-12 mm. long; wings equaling or somewhat broader than the body; oil tubes 2-3 in the intervals.

Desert mountains among pines, Panamint Mts., California to SE Utah. Nevada: Clark, Lincoln and Nye Cos. Flowers April to May.

11a. LOMATIUM NUTTALLII (Gray) Macbr., Contr. Gray Herb. 56: 35, 1918.

var. NUTTALLII

Seseli nuttallii Gray, Proc. Am. Acad. 8: 287, in part, 1870; Peucedanum kingii S. Wats., l.c. 22: 474, 1887; Cynomarathrum nuttallii Coult. & Rose, Contr. U. S. Nat. Herb. 7: 245, 1900; Cogswellia nuttallii Jones, Contr. W. Bot. 12: 32, 1908.

Acaulescent to 4.2 dm. high, from a branched subwoody caudex covered with old leaf sheaths, glabrous, leaves oblong, 1-2-pinnate or ternate- or quinate-pinnate, the leaflets remote, linear, to 5 cm. long, entire, cuspidate; involucel of distinct or shortly connate, linear, acute to acuminate bractlets, entire or once-lobed near the base, longer than or equaling the flowers, sometimes reflexed; rays 5-16, erect to suberect, to 4.3 cm. long; pedicels 3-7 mm. long; flowers yellow; fruit narrowly oblong, 9-13 X 3-4 mm., wings about 1/2 the width of the body; oil tubes 3-5 in the intervals.

Desert mountains, Idaho, SW Wyoming to E Nevada, S to NW New Mexico. Nevada material seen from Clark Co. Flowers May to June.

11b. LOMATIUM NUTTALLII var. ALPINUM (Wats.) Mathias, Ann. Mo. Bot. Gard. 25: 279, 1937.

Peucedanum graveolens var. alpinum Wats., Bot. King's Expl. 129, 1871; P. kingii var. alpinum Coult. & Rose, Rev. N. Am. Umbell. 71, 1888; Cynomarathrum alpinum Coult. & Rose, Contr. U. S. Nat. Herb 7: 245, 1900; Cogswellia nuttallii var. alpina Jones, Contr. W. Bot. 12: 32, 1908; Lomatium alpinum Macbr., Contr. Gray Herb. 56: 35, 1918.

Usually lower than var. nuttallii, up to 3 dm. high, leaves usually less divided than var. nuttallii; rays 3-6; pedicels 4-10 mm. long.

Desert mountains, W Utah and adjacent Nevada (Clark, Elko, Lincoln and White Pine Cos.). Flowers May to June.

12. LOMATIUM SIMPLEX (Nutt.) Macbr., Contr. Gray Herb. 56: 34, 1918.

Peucedanum simplex Nutt. ex. Wats. Bot. King's Expl. 129, 1871; Lomatium platycarpum Coult. & Rose, Contr. U. S. Nat. Herb. 7: 226, in part, 1900; Cogswellia platycarpa Jones, Contr. W. Bot. 12: 32, 1908; C. simplex Jones, Bull. Univ. Mont. Biol. 15: 41, 1910.

Caulescent or acaulescent, 2-6 dm. high, from a long slender taproot, the stems usually simple, few-leaved, densely puberulent; leaves obovate, biternate, the leaflets linear, acute, to 11.5 cm. long, glabrous above, glabrous to densely puberulent below; involucel of linear or filiform, acute to acuminate, glabrous or puberulent bractlets, shorter than the pedicels; rays 8-17, spreading to ascending, unequal, to 5.8 cm. long; pedicels 1-9 mm. long, the umbellets 10-30-flowered; flowers yellow; fruit broadly oblong to suborbicular, 7-14 X 7-10 mm., glabrous; wings broader than the body; oil tubes solitary in the intervals.

Rocky hillsides and flats, central Washington and Oregon to W Montana and SW Colorado. Nevada material seen from Elko County. Flowers May to July.

13a. LOMATIUM TRITERNATUM (Pursh) Coult. & Rose, Contr. U. S. Nat. Herb. 7: 227, 1900 var. TRITERNATUM

Seseli triternatum Pursh, Fl. Am. Sept. 197, 1814; Eulophus triternatus Nutt., Jour. Acad. Phila. 7: 27, 1834; Peucedanum triternatum Nutt. ex T. & G., Fl. N. Am. 1: 626, 1840; Cogswellia triternata Jones, Contr. W. Bot. 12: 32, 1908.

Caulescent or acaulescent to 8 dm. high, from a long, slender taproot, puberulent to glabrate; leaves broadly obovate, ternate or quinate, then 1-2-pinnate, the leaflets few, linear to linear-lanceolate, to 12.6 cm. long, entire, acute; involucel of several filiform bractlets, about equaling the pedicels; rays 10-20, spreading to suberect, to 5.5 cm. long, unequal, pedicels 3-5 mm. long, the umbellets many-flowered; flowers yellow, the ovaries glabrous; fruit oblong, 9-13 X 3-5 mm., glabrous; wings narrower than the body; oil tubes solitary in the intervals, 2 on the commissure.

Stony ground, W Washington to N California, E to Alberta and W Wyoming. Nevada material seen from Elko County. Flowers April to August.

13b. LOMATIUM TRITERNATUM var. MACROCARPUM (Coult. & Rose) Mathias, Ann. Mo. Bot. Gard. 25: 286, 1937.

Peucedanum triternatum var. macrocarpum Coult. & Rose, Rev. N. Am. Umbell. 70, 1888; Lomatium robustius Coult. & Rose Contr. U. S. Nat. Herb. 7: 228, 1900; L. alatum Coult. & Rose, l.c.; Cogswellia alata Coult. & Rose, l.c. 12: 448, 1909; C. robustior Coult. & Rose, l.c.: 451, 1909.

Ovaries puberulent; fruit oblong, 8-20 X 4-6 mm., glabrous or sparsely puberulent.

Stony ground, British Columbia to N California, E to Alberta and Nevada (Washoe Co.). Flowers April to August.

14. LOMATIUM NUDICAULE (Pursh) Coult. & Rose, Contr. U. S. Nat. Herb. 7: 238, 1900.

Smyrnium nudicaule Pursh, Fl. Amer. Sept. 196, 1814.

Acaulescent, or rarely with one stem leaf, to 7 dm. tall, from a long thickened taproot, glabrous; leaves 1-2-ternate, then pinnate, the leaflets distinct, lanceolate to broadly ovate, to 9 cm. long, entire or toothed and lobed at the apex; peduncles swollen at the apex; involucel absent; rays 10-20, ascending, somewhat swollen at the apex, to 20 cm. long; pedicels 3-15 mm. long, the umbellets many-flowered; flowers yellow; fruit oblong, 10-14 mm. long; wings narrower than the body; oil tubes solitary in the intervals, 1 to several in the dorsal intervals, 4-7 on the commissure.

Gravelly ground, British Columbia to central California, E to Alberta and W Utah. Nevada: Elko, Humboldt, Washoe and White Pine Cos. Flowers April to July.

23. PASTINICA L.

Tall, branching biennial or perennial herbs with pinnately compound leaves. Flowers in compound umbels, yellow or reddish. Involucre and involucel small or wanting. Sepals obsolete. Stylopodium depressed-conic; fruit compressed dorsally; dorsal ribs filiform, the laterals winged; oil tubes solitary in the intervals, 2-4 on the commissure; seed face plane.

Name from an ancient Latin name for the genus.

A genus of about 14 species, native of Eurasia, one, the cultivated parsnip, escaped in Nevada.

1. PASTINACA SATIVA L., Sp. Pl. 262. 1753.

Plants stout, to 10 dm. tall, glabrate; leaflets oblong to ovate, serrate or somewhat incised or lobed, to 10 cm. long; rays 15-25, unequal, to 10 cm. long; pedicels 5-10 mm. long; fruit 5-6 mm. long.

Escaped from cultivation and locally naturalized usually in moist places. Nevada material seen from Elko, Lincoln, Lyon, Mineral, Ormsby and Washoe Cos. Flowers July to August.

24. HERACLEUM L.

Tall, stout, branching pubescent biennial or perennial herbs with ternately or pinnately compound leaves. Flowers in compound umbels, usually white. Involucre usually absent; involucel of numerous, entire, narrow bracts. Sepals obsolete. Stylopodium conical. Fruit compressed dorsally; dorsal ribs filiform, the laterals broadly thin-winged and strongly nerved near the outer margin; oil tubes large, solitary in the intervals, 2-4 on the commissure, extending only part way to the base of the fruit; seed face plane.

Named for Hercules.

A holarctic genus of about 60 species, one in Nevada.

1. HERACLEUM LANATUM Mich., Fl. Bor. Amer. 1: 166, 1803.

Plants tomentose, to 30 dm. high; leaflets ovate to orbicular to 40 cm. long, cordate, coarsely serrate and variously lobed; upper stem leaves with inflated sheaths; peduncles densely villous at the base of the umbels; rays 15-30, unequal, to 10 cm. long; fruit obovate to obcordate,

to 12 mm. long, pubescent.

Moist areas, E. Asia, Alaska to California, E to the Atlantic Coast. Nevada material seen from Douglas, Humboldt, Ormsby and Washoe Cos. Flowers May to August.

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